

**b. Discussion**

44. We conclude that a proprietary network element is “necessary” within the meaning of section 251(d)(2)(A) if, taking into consideration the availability of alternative elements outside the incumbent’s network, including self-provisioning by a requesting carrier or acquiring an alternative from a third-party supplier, lack of access to that element would, as a practical, economic, and operational matter, *preclude* a requesting carrier from providing the services it seeks to offer. We agree with NTIA that the proper focus of the “necessary” standard is whether access to the incumbent LEC’s proprietary element is absolutely required for the competitor’s provision of its intended service.<sup>70</sup> We find, therefore, that an incumbent LEC must provide access to a proprietary element, if withholding access to the element would prevent a competitor from providing the service it seeks to offer. In other words, we conclude that an incumbent LEC’s proprietary network element would only be available to a competitor if the competitor is unable to offer service, without access to the element, because no practical, economic, and operational alternative is available, either by self-provisioning or from other sources.

45. The standard we assign to the term “necessary,” as used in section 251(d)(2)(A), is consistent with the Supreme Court’s decision because it considers alternatives available outside the incumbent’s network and gives substance to the meaning of “necessary.” Moreover, insofar as the standard focuses on the competitor’s ability to furnish a desired service, and not merely on whether profits are increased by using the incumbent’s network, the standard is also consistent with the Court’s instruction that we must “apply some limiting standard, rationally related to the goals of the Act.”<sup>71</sup>

46. This “necessary” standard differs from the “impair” standard we adopt below because a “necessary” element would, if withheld, *prevent* a carrier from offering service, while an element subject to the “impair” standard would, if withheld, merely limit a carrier’s ability to provide the services it seeks to offer.<sup>72</sup> We therefore disagree with the standards proposed by ALTS and other competitive LECs that access to a proprietary element is “necessary” if the entrant would experience a material loss in functionality without access to the element.<sup>73</sup> A standard based on a test of “material loss” in functionality requires only that the competitive LEC’s ability to compete be materially affected in some way, as opposed to precluded, and ignores the higher degree of protection normally afforded intellectual property rights.<sup>74</sup> The incumbent LECs argue that the “necessary” standard is a higher standard that is intended to preserve their

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<sup>70</sup> NTIA Comments at 27.

<sup>71</sup> *Iowa Utils. Bd.*, 119 S. Ct. at 735-36.

<sup>72</sup> See Vermont PSB Comments at 10-11; CPI Comments at 7-9.

<sup>73</sup> ALTS Comments at 19. See also Cable & Wireless Comments at 3-4; MCI WorldCom Comments at 18-19; Net2000 Comments at 9; NEXTLINK Comments at 10-12.

<sup>74</sup> See *supra* Section IV(B)(2).

incentive to invest in proprietary protocols,<sup>75</sup> and that access to a proprietary element is “necessary” only if lack of access to that element would deny an efficient competitor a meaningful opportunity to compete.<sup>76</sup> We agree with the incumbent LECs’ concerns regarding the preservation of their investment incentives. We believe that our standard, by requiring that a requesting carrier be precluded as a practical, economic, and operational matter from providing service without access to the proprietary information, sufficiently protects the incumbents’ proprietary property from nonessential access by competitors.

47. We reject, however, the incumbent LECs’ proposal to base the “necessary” standard on the requirements of an efficient competitor. As we explain below in our discussion of the “impair” standard, we do not affirmatively base our unbundling standard on an efficient competitor because we conclude that the marketplace is better able than regulators to distinguish efficient competitors from inefficient competitors.<sup>77</sup> We also note that GTE and SBC state that few, if any, network elements are entirely proprietary in nature.<sup>78</sup> Other commenters point out that most network equipment and services are non-proprietary because of the need for interoperability of networks.<sup>79</sup> We therefore expect that the “necessary” standard will be invoked only when there is a serious question of whether access to the element will infringe upon the incumbent’s intellectual property.

#### 4. The “Impair” Standard of Section 251(d)(2)(b)

##### a. Background

48. In the *Local Competition First Report and Order*, the Commission adopted a dictionary definition of the term “impair” that means “to make or cause to become worse; diminish in value.” The Commission stated that “generally . . . an entrant’s ability to offer a telecommunications service is ‘diminished in value’ if the quality of the service the entrant can offer, absent access to the requested element, declines and/or the cost of providing the service rises.”<sup>80</sup> In particular, the Commission interpreted the “impair” standard as requiring an evaluation of whether the failure of an incumbent to provide

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<sup>75</sup> See, e.g., GTE Comments at 26; SBC Comments at 14.

<sup>76</sup> See, e.g., Ameritech Comments at 37-40; SBC Comments at 14; US West Comments at 23-26.

<sup>77</sup> See *infra* Section IV(B)(4).

<sup>78</sup> SBC Comments at 12; GTE Comments at 26.

<sup>79</sup> See, e.g., Choice One Joint Comments at 11-12; KMC Comments at 11.

<sup>80</sup> *Local Competition First Report and Order*, 11 FCC Rcd at 15643, para. 285 (citing Random House College Dictionary 665 (rev. ed. 1984)).

access to a network element would decrease the quality, or increase the financial or administrative cost of the service a requesting carrier seeks to offer.<sup>81</sup>

49. In the *Notice*, we sought comment on the meaning of the term “impair,” and asked whether we should adopt a standard under which we examine whether the new entrant’s ability to offer a telecommunications service in a competitive manner is materially diminished in value.<sup>82</sup> We also sought comment on the factors or criteria we should adopt to determine whether failure to provide access to the incumbent LEC’s network elements would impair an entrant’s ability to provide service within the meaning of section 251(d)(2).<sup>83</sup>

50. The incumbent LECs argue generally that a requesting carrier is impaired if, after taking into account the availability of elements from alternative sources outside the incumbent’s network, lack of access to the requested element would deny a competitor a meaningful opportunity to compete. This standard is similar to the standard the incumbent LECs propose for the “necessary” standard under section 251(d)(2)(A).<sup>84</sup> GTE argues that failure to provide access to a network element would impair a requesting carrier’s ability to provide service only where the element is essential to competition, and there is convincing evidence that the carrier cannot compete effectively using an alternative network element.<sup>85</sup> Several incumbent also maintain that we must consider all available alternatives, including those available from other suppliers and through self-provisioning by the requesting carrier.<sup>86</sup> The Texas PUC proposes that a competitor is impaired if, looking at the marketplace as a whole, lack of access to the incumbent’s network element causes it to incur an increase in cost such that the competitor does not have a meaningful opportunity to compete.<sup>87</sup> The competitive LECs and the Illinois Commerce Commission propose a standard by which a carrier would be impaired if, after taking into account the availability of elements from alternative sources outside the incumbent’s network, lack of access to the requested element would materially diminish the requesting carrier’s ability to provide service.<sup>88</sup> The difference between the standard

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<sup>81</sup> *Local Competition First Report and Order*, 11 FCC Rcd at 15643, para. 285.

<sup>82</sup> *Notice* at para. 17.

<sup>83</sup> *Id.* at para. 20.

<sup>84</sup> See, e.g., Bell Atlantic Comments at 7-9; BellSouth Comments at 21-22; SBC Comments at 5, 14; US West Comments at 10-11.

<sup>85</sup> GTE Comments at 14-20.

<sup>86</sup> See, e.g., Ameritech Joint Reply Comments at 16-17.

<sup>87</sup> Texas PUC Comments at 7-8.

<sup>88</sup> See, e.g., Ad Hoc Comments at 4-5; Cable & Wireless Comments at 10-14; Choice One Joint Comments at 6-7; Excel Comments at 6-8; MCI WorldCom Comments at 15-18; Northpoint Comments at 6-10; RCN Comments at 12; TRA Comments at 19-23; Illinois Commission Comments at 6-7.

proposed by the competitive LECs and the standard proposed by the incumbent LECs is essentially the difference between whether lack of access to an unbundled network element “denies” or “materially diminishes” the ability of a competitor to provide the services it seeks to offer. Many competitive LECs also assert that the incumbent LECs’ failure to provide access to an element would impair a requesting carrier’s ability to provide service where there is no competitive wholesale market for the requested element.<sup>89</sup>

**b. Discussion**

**(i) The “Impair” analysis**

51. We conclude that the failure to provide access to a network element would “impair” the ability of a requesting carrier to provide the services it seeks to offer if, taking into consideration the availability of alternative elements outside the incumbent’s network, including self-provisioning by a requesting carrier or acquiring an alternative from a third-party supplier, lack of access to that element materially diminishes a requesting carrier’s ability to provide the services it seeks to offer. We find that a materiality component, although it cannot be quantified precisely, requires that there be substantive differences between the alternative outside the incumbent LEC’s network and the incumbent LEC’s network element that, collectively, “impair” a competitive LEC’s ability to provide service within the meaning of section 251(d)(2).<sup>90</sup> We therefore agree with the Illinois Commerce Commission that where a competing LEC’s “ability to offer a telecommunications service in a competitive manner is materially diminished in value without access to that element,” the competitor’s ability to provide its desired services would be impaired.<sup>91</sup>

52. We believe that a standard that includes a “materiality” component gives substance to the “impair” standard of section 251(d)(2)(B), and responds to the Supreme Court’s concern that we “apply some limiting standard, rationally related to the goals of the Act.”<sup>92</sup> A standard that includes a materiality component preserves requesting carriers’ ability to provide service using unbundled elements, as contemplated by the Act,

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<sup>89</sup> See, e.g., Allegiance Comments at 8-11; Cable & Wireless Comments at 6-10; Covad Comments at 14-18; Excel Comments at 8-10; NorthPoint Comments at 6-10.

<sup>90</sup> See Cable & Wireless Comments at 12-14.

<sup>91</sup> Illinois Commission Comments at 6-7. Illinois illustrates the standard by describing the circumstances under which a carrier would be impaired. According to the Illinois Commerce Commission, self-provisioning a loop would impair a requesting carrier’s to compete because it would incur material up-front installation costs and delays, and would have to acquire access to rights-of-way and undertake other labor-intensive activities to replicate the incumbent’s loop facilities. *Id.*

<sup>92</sup> We note that courts have applied the standard dictionary definition of “impair” as “[t]o weaken, to make worse, to lessen in power, diminish, or relax, or otherwise affect in an injurious manner.” See, e.g., *Humana Inc. v. Forsyth*, 119 S. Ct. 710, 717 (1999).

and encourages them to invest and innovate. As envisioned by Congress, requesting carriers may need each of the three separate means of providing service (resale of the incumbent LEC's service, use of unbundled incumbent LEC network elements, deployment of self-provisioned facilities), or various combinations of these means, in order to serve different customer classes in different areas. The purchase of unbundled network elements from the incumbent should serve as a transitional strategy that will provide requesting carriers with the ability to gain a sufficient volume of business to justify economical deployment of their own facilities.

53. Although we recognize that the existence of some significant level of competitive LEC facilities deployment is probative of whether competitive LECs are impaired from providing service within the meaning of section 251(d)(2), we decline to adopt the incumbent LECs' position that the presence of a single competitor providing service, without using the incumbent's unbundled network elements, is dispositive evidence that a competitor's ability to provide service generally would not be impaired without access to such elements.<sup>93</sup> According to Bell Atlantic, if an efficient competitor can and does provide service without access to the incumbent's network element, it is irrelevant whether a less efficient competitor might claim that it would be impaired without access to the element.<sup>94</sup> We find that the "efficiency" argument raised by Bell Atlantic and other incumbent LECs is more relevant to the length of time a competitor has been in business than to the efficiencies created by the competitor's inherent capabilities or cost structure. More importantly, however, we agree with MCI WorldCom that the Act is not calibrated to the performance of the company whose business plan allows it to rely the least on the incumbent LEC's network elements.<sup>95</sup> The provisions of the 1996 Act do not contemplate that either the incumbent LEC or the regulator will determine whether a particular carrier is "efficient." Rather, the Act is designed to create a regulatory framework that requires incumbent LECs to make network elements subject to the unbundling obligations of section 251 available to *all* requesting carriers, subject to the requirements of section 251(d)(2), and allows the marketplace to determine ultimately which competitors thrive or survive.<sup>96</sup>

54. Moreover, the ability of one or more competitors to serve certain customers in a particular market is not dispositive of whether competitive LECs without unbundled access to the incumbent LEC's facilities are able to compete for other customers in the same market or for customers in other markets. In some markets, particularly those markets serving high-volume business customers, it may be practical and economical for

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<sup>93</sup> Bell Atlantic Comments at 14; US West Comments at 12.

<sup>94</sup> Bell Atlantic Comments at 9.

<sup>95</sup> MCI WorldCom Reply Comments at 23-24.

<sup>96</sup> See NTIA Comments at 5-6, n.16 ("The obvious conclusion [of the market opening provisions of the 1996 Act] is that Congress sought to foster entry by multiple firms and then let competitive market processes distinguish the 'efficient' providers from the 'inefficient' ones.").

competitive LECs to compete using self-provisioned facilities. In other markets, however, typically those markets consisting of residential consumers and small businesses, the delay and costs associated with self-provisioning a network element will preclude those same competitors, or others, from assuming the risk of entry, unless they can purchase unbundled elements from the incumbent.<sup>97</sup> We agree with the commenters that point out that we cannot evaluate the needs of every potential carrier seeking access to each network element on a case-by-case basis.<sup>98</sup> We conclude, however, that we should not adopt rules that would deny access to network elements to all competitors based on the presence of a single competitor that has been able to enter without the use of a particular unbundled network element from the incumbent LEC.

55. We believe that Congress rejected implicitly the argument that the presence of a single competitor, alone, should be dispositive of whether a competitive LEC would be “impaired” within the meaning of section 251(d)(2). For example, although Congress fully expected cable companies to enter the local exchange market using their own facilities, including self-provisioned loops, Congress still contemplated that incumbent LECs would be required to offer unbundled loops to requesting carriers.<sup>99</sup> A standard that would be satisfied by the existence of a single competitive LEC using a non-incumbent LEC element to serve a specific market, without reference to whether competitive LECs are “impaired” under section 251(d)(2), would be inconsistent with the Act’s goal of creating robust competition in telecommunications. In particular, such a standard would not create competition among multiple providers of local service that would drive down prices to competitive levels. Indeed, such a standard would more likely create stagnant duopolies comprised of the incumbent LEC and the first new entrant in a particular market. An absence of multiple providers serving various markets would significantly limit the benefits of competition that would otherwise flow to consumers.

56. On the other hand, we are not persuaded by arguments of competitive LECs that the “impair” standard is met only once it is determined that a wholesale market exists for a particular element.<sup>100</sup> We agree with the incumbent LECs that basing the

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<sup>97</sup> See, e.g., Qwest Comments at 18 (“The fact that some CLECs are engaging in self-supply of network elements also is not evidence of lack of impairment. It is evidence only that for some carriers, in some instances, for some customers, during particular time periods, in particular geographic areas, they are able to cost-justify self-supply.”); AT&T Reply Comments at 120, 123-24 and Tab B, Aff. of R. Glenn Hubbard/William H. Lehr/Janusz A. Ordovery/Robert D. Willig, at paras. 36-38; MCI WorldCom Reply Comments at 36-37.

<sup>98</sup> See Ameritech Comments at 36; Choice One Joint Comments at 12-13; CPI Comments at 13; KMC Comments at 7; MCI WorldCom Comments, Tab 2, Decl. of John E. Kwoka, at para. 38; Prism Comments at 9-10.

<sup>99</sup> *Joint Explanatory Statement* at 148 (recognizing potential of cable companies to become facilities-based competitors within the meaning of section 271(c)(1)(A), and stating that competitors will still need access to the incumbent LECs’ network.).

<sup>100</sup> See, e.g., Allegiance Comments at 8-11; Cable & Wireless Comments at 6-10; Covad Comments at 14-18; Excel Comments at 8-10; NorthPoint Comments at 6-10.

“impair” standard on the existence of a wholesale market does not take into consideration self-provisioning as a viable substitute to the incumbent LECs’ network elements.<sup>101</sup> The Supreme Court decision in *Iowa Utils. Bd.* expressly faulted the Commission’s analysis in the *Local Competition First Report and Order* for not comparing use of the incumbent LEC’s element with “self-provision” or with “purchas[ed elements] from another provider.”<sup>102</sup> We find that, in order to thoroughly evaluate the availability of alternative elements outside of the incumbent LEC’s network, we must consider elements available from all sources, including those elements available from third-party suppliers and through self-provisioning.<sup>103</sup>

57. Several of the incumbent LECs argue that our standard should be based on an analysis similar to the one used by courts in determining whether, according to the essential facilities doctrine, a firm must share its facilities with competitors.<sup>104</sup> We disagree. Although we acknowledge that the Supreme Court referred to the possibility of adopting a limiting standard based on the essential facilities doctrine,<sup>105</sup> we find nothing in the legislative history or statutory language of the 1996 Act, or in the Court’s decision that requires us to apply that doctrine in determining which network elements the incumbent LECs must unbundle. Indeed, the Court expressly declined to decide, as a matter of law, whether the essential facilities doctrine is mandated by section 251(d).<sup>106</sup> Further, we believe that the standard under section 251(d) better reflects the overall goals of the Act. Accordingly, as discussed more fully below, we describe several factors that should be considered in determining whether a particular network element must be unbundled pursuant to section 251(c)(3).<sup>107</sup>

58. As an initial matter, the legislative history and statutory language of the Act indicate that Congress did not intend to codify the essential facilities doctrine when it

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<sup>101</sup> Ameritech Joint Reply Comments at 17.

<sup>102</sup> *Iowa Utils. Bd.*, 119 S. Ct. at 735.

<sup>103</sup> ALTS points out that although new entrants always have the potential of offering service using self-provisioned elements, the Act contemplates more immediate entry by competitors through the use of resale and unbundled network elements. ALTS Reply Comments at 19-20. The unbundling standard that we adopt does not allow for the incumbent’s unbundling obligation to be eliminated based merely upon a showing that a requesting carrier has the potential to self-provision or acquire facilities at some indefinite time in the future. This would be inconsistent, as ALTS suggests, with the Act’s goal to encourage for all consumers rapid deployment of competitive alternatives. The unbundling analysis that we undertake considers instead the current facts in the marketplace.

<sup>104</sup> See, e.g., Ameritech Comments at 28-32; GTE Comments at 14-20; US West Comments at 6-7.

<sup>105</sup> *Iowa Utils. Bd.*, 119 S. Ct. at 734.

<sup>106</sup> *Id.*

<sup>107</sup> See *infra* Sections (IV)(B)(4)(b)(ii) and (IV)(C).

enacted section 251(d)(2). Specifically, the legislative history indicates that Congress was aware of antitrust principles and the essential facilities doctrine, in particular, when it considered the 1996 Act. At least since 1991, the Senate had considered telecommunications legislation that expressly referred to “essential facilities.”<sup>108</sup> Yet, in spite of its awareness of this doctrine, Congress did not adopt an essential facilities test for unbundling of network elements. Congress chose, instead, to adopt unbundling requirements that are based upon the “necessary” and “impair” standards of section 251(d)(2). Moreover, section 601(b)(1) of the Act expressly preserves the existing antitrust laws, indicating that Congress intended for the Act to augment, not replace, traditional antitrust rules.<sup>109</sup>

59. The essential facilities doctrine is an antitrust doctrine that imposes an obligation on a firm that controls facilities that are essential for the existence of competition between itself and a competitor to share such facilities on non-discriminatory terms.<sup>110</sup> The doctrine creates a narrow exception to the general antitrust presumption that a single firm may decline to deal with another firm.<sup>111</sup> Under the essential facilities doctrine, a court may require a firm possessing monopoly control over an essential input to deal with a competitor, if it is shown that the monopolist is misusing control of an essential facility to foreclose competition in a downstream market.<sup>112</sup>

60. Although we find that the essential facilities doctrine promotes the same economic and policy goals embodied in the 1996 Act, we find it to be of limited assistance in our analysis of the unbundling obligations of the Act because, as NTIA explains, the Act plainly imposes on incumbent LECs a broader duty to deal with competitors than does the essential facilities doctrine.<sup>113</sup> In particular, the essential facilities doctrine differs from the analysis the Commission must undertake under section 251(d)(2) because Congress has already created an affirmative obligation for incumbent LECs to make their facilities available to competitors.<sup>114</sup> Specifically, section 251(c)(3)

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<sup>108</sup> MCI WorldCom Comments at 35 (citing 137 Cong. Rec. S7054, S7058 (daily ed. June 5, 1991) (reading S. 1200, 102d Cong. § 202 1991)).

<sup>109</sup> 47 U.S.C. § 601(b)(1).

<sup>110</sup> See MCI WorldCom Comments at 28-29 (citing Section 2 of the Sherman Act, 15 U.S.C. § 2; *MCI Telecommunications Corp. v. American Tel. & Tel. Co.*, 708 F.2d 1081, 1132-33 (7<sup>th</sup> Cir. 1983)) (*MCI v. AT&T*).

<sup>111</sup> See Phillip Areeda, *Essential Facilities: An Epithet in Need of Limiting Principles*, 58 ANTITRUST L.J. 841, 841 (1989); *Olympia Equipment Leasing Co. v. Western Union Telegraph Co.*, 797 F.2d 370, 376, reh. den. 802 F.2d 217 (7<sup>th</sup> Cir. 1986).

<sup>112</sup> See *MCI v. AT&T*, 708 F.2d at 1132-33.

<sup>113</sup> NTIA Comments at 14-16.

<sup>114</sup> See NTIA Comments at 16 (“Indeed, to the extent that Congress considered the essential facilities doctrine at all, it concluded that (1) the ILECs’ networks *are* essential facilities and (2) that



imposes on incumbent LECs a general obligation to provide access on an unbundled basis to any network elements that the Commission identifies under section 251(d)(2). This obligation is not limited to situations in which the incumbent is misusing control of a unique facility to foreclose competition in a downstream market. Rather, section 251(d)(2) requires incumbents to share their facilities if competitors are merely "impaired" in their ability to provide services they seek to offer. In addition, sections 251(c)(3) and 251(d)(2) require incumbent LECs to make their facilities available at cost-based rates, whereas the essential facilities doctrine allows monopolists to continue charging monopoly rates for use of their facilities.<sup>115</sup>

61. It is particularly notable that although the essential facilities doctrine is referenced in several Supreme Court rulings, the Supreme Court has never explicitly adopted the doctrine.<sup>116</sup> Moreover, because antitrust jurisprudence has not clearly defined the contours of the essential facilities doctrine, the doctrine provides limited guidance in developing a limiting standard under section 251(d)(2). In order to establish liability under the essential facilities doctrine, a plaintiff must establish the existence of five elements: 1) a monopolist controls an essential facility; 2) the competitor is unable to practically or reasonably duplicate the essential facility; 3) the monopolist denies a competitor use of the facility; 4) the monopolist can feasibly provide the facility; and 5) there is no legitimate business justification for denying access to the facility the monopolist controls.<sup>117</sup> Although the second prong of this test resembles the inquiry the Commission must undertake to evaluate the availability of alternative elements outside of the incumbent LEC's network, it does not establish a standard by which the Commission can measure the extent to which the cost of duplicating the element is economically infeasible, which, as described below, is a significant part of the our unbundling analysis.

#### (ii) Factors for Determining Availability of Alternative Network Elements

62. In order to respond to the Supreme Court's decision, we consider whether a requesting carrier's ability to provide the services that it seeks to offer would be materially diminished if it were required to use an alternative element available outside the incumbent LEC's network. We agree with those parties that argue that we must consider the totality of the circumstances to determine whether an alternative to the incumbent LEC's network element is available in such a manner that a requesting carrier

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alternative providers must have broad access to those facilities if there was to be local competition.") (emphasis in original).

<sup>115</sup> See Sprint Comments at 15-16.

<sup>116</sup> Areeda, *supra* note 111, at 841 (Calling the essential facilities doctrine a "so-called" doctrine because "the cases support the doctrine only by implication and in a highly qualified way. . . . It is less a doctrine than an epithet, indicating some exception to the right to keep one's creation to oneself, but not telling us what those exceptions are.").

<sup>117</sup> *MCI v. AT&T*, 708 F.2d at 1132-33.

can realistically be expected to actually provide service using the alternative.<sup>118</sup> We therefore take into account alternatives that are available through both self-provisioning and from third-party suppliers,<sup>119</sup> and we consider the extent to which these alternatives are available as a practical, economic, and operational matter.

63. We are not persuaded by the incumbents' argument that we must look at each element in isolation to determine whether or not that element independently satisfies section 251(d)(2).<sup>120</sup> Such an analysis fails to reflect the manner in which carriers interconnect their networks, and ignores factors that would impair a requesting carrier's ability to actually provide service, which is the focus of section 251(d)(2)(B). Even if a particular element may be purchased outside of the incumbent LEC's network at reasonable prices, other factors, including the costs and delays associated with collocation arrangements, as well as additional costs and operational impediments associated with the manual processes used to interconnect certain network elements, may make it impossible as a practical, economic, and operational matter for a competitor to provide services in the local market quickly and on a wide-spread basis.

64. We acknowledge that some of the factors we consider in our analysis may implicate other proceedings or provisions of the statute.<sup>121</sup> We therefore remain open to the possibility that issues that we address under our "impair" analysis, (e.g., collocation), could be addressed in other contexts, such as in enforcement proceedings.

65. Although we recognize that the factors of cost, timeliness, quality, ubiquity, and operational factors are only some of the factors that may influence a carrier's decision to enter a particular market, we agree with the California PUC that these factors are relevant to an inquiry of whether alternative sources of network elements are reasonably available from other sources, and thus, in many cases, whether requesting carriers are able to actually provide service using the alternative element.<sup>122</sup> We also agree with the

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<sup>118</sup> See, e.g., McLeod Comments at 5 (stating that there are "multiple dimensions" associated with the question of the availability of a particular network element such as ubiquity, economies of scale and scope, constrained capital resources and lag times associated with new construction); RCN Comments at 12 (stating that the Commission should consider how the totality of the circumstances indicates that requiring unbundling of an element would promote the pro-competitive purpose of the 1996 Act).

<sup>119</sup> In this Order, when we refer to the availability to a requesting carrier of an element from a third-party supplier, we are referring to a supplier other than the incumbent LEC.

<sup>120</sup> SBC Comments at 9-11.

<sup>121</sup> See, e.g., *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket No. 98-147, *First Report and Order and Further Notice of Proposed Rulemaking*, 14 FCC Rcd 4761 (1998) (*Advanced Services First Report and Order and FNPRM*); *Performance Measurements and Reporting Requirements for OSS, Interconnection, and Operator Services and Directory Assistance*, CC Docket No. 98-56, *Notice of Proposed Rulemaking*, 13 FCC Rcd 12817 (1998) (*Performance Measurements Notice*).

<sup>122</sup> See, e.g., California PUC Reply Comments at 3-8 (stating that the Commission should evaluate quality, reliability, geographic scope, quantity, time, cost and operational factors associated with

commenters that point out that we cannot evaluate the needs of every potential entrant for every network element on a carrier-by-carrier, market-by-market, week-by-week (or other time period) basis.<sup>123</sup> We therefore will not analyze the availability of alternative elements, including those provided through self-provisioning, from the perspective of a carrier using any specific competitive strategy in a particular geographic market.

66. Although we find it reasonable to consider cost, time, quality, ubiquity, and other factors associated with self-provisioning or acquiring an element from a third-party provider, we do not base our decision on cost models or on the theoretical availability of alternatives from other sources. Rather, we find the marketplace to be the most persuasive evidence of the actual availability of alternatives as a practical, economic, and operational matter. As the Texas PUC stated, the Commission and the states should “base their decisions on marketplace information, while recognizing that minor increases in a competitor’s costs must be weighed against other factors such as service quality, technological innovation, and the loss of efficiency in a rapidly changing marketplace.”<sup>124</sup> Discerning the practical, economic, and operational viability of self-provisioning or obtaining alternative elements from third-party providers is technical, complex, and subject to considerable uncertainty. We believe, however, that an examination of the factors we have identified provides the Commission with the ability to identify, through the exercise of its administrative judgment, discernable material differences between using the incumbent’s unbundled network elements and those available from other sources that ultimately will affect a requesting carrier’s ability to provide the services it seeks to offer.

67. We assign little weight in our “impair” analysis to the ability of a requesting carrier to use the incumbent LECs’ resold or retail tariffed services as alternatives to unbundled network elements. In the *Local Competition First Report and Order*, the Commission expressly rejected the incumbent LECs’ argument that requesting carriers are not impaired in their ability to provide service if they can provide their proposed service by purchasing the service at wholesale rates from the incumbent LEC. As the Commission concluded in that Order, allowing incumbent LECs to deny access to unbundled elements solely, or primarily, on the grounds that an element is equivalent to a service available at resale would lead to impractical results; incumbent LECs could completely avoid section 251(c)(3)’s unbundling obligations by offering unbundled elements to end users as retail services.<sup>125</sup> In other words, denying access to unbundled

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using an alternative network element.).

<sup>123</sup> See Ameritech Comments at 36; Choice One Joint Comments at 12-13; CPI Comments at 13; KMC Comments at 7; MCI WorldCom Comments, Tab 2, Decl. of John E. Kwoka, at para. 38; Prism Comments at 9-10.

<sup>124</sup> Texas PUC Comments at 7-8.

<sup>125</sup> *Local Competition First Report and Order*, 11 FCC Rcd at 15643-44, paras. 286-87. The Eight Circuit agreed that while subsection 251(c)(4) does provide for the resale of telecommunications services, it does not establish resale as the exclusive means through which a competing carrier may gain access to such services. It consequently agreed with the Commission that such an interpretation would allow

elements on the grounds that an incumbent LEC offers an equivalent retail service could force requesting carriers to purchase, for example, an unbundled loop and switching out of an incumbent's retail tariff at a wholesale discount, subject to all of the associated tariff restrictions. US West maintains that it need not unbundle local transport because requesting carriers can purchase its tariffed special access services.<sup>126</sup> In light of the little weight we assign to the availability of resold services in our analysis, we reject US West's argument. This argument would foreclose competitive LECs from taking advantage of the distinct opportunity Congress gave them, through section 251(c)(3), to use unbundled network elements.<sup>127</sup>

68. As the Commission explained in the *Local Competition First Report and Order*, using unbundled network elements and resold services present different opportunities, risks, and costs, in connection with providing local telephone service. These differences influence the entry strategies of potential competitors.<sup>128</sup> The Commission stated that carriers using unbundled elements will have greater opportunities to offer services that are different from those services offered by the incumbents. More specifically, carriers reselling incumbent LEC services are limited to offering the same service an incumbent LEC offers at retail.<sup>129</sup> While competitive LECs using unbundled elements may have greater competitive opportunities than carriers offering services available for resale, they also face greater risks. A carrier purchasing unbundled elements must pay for the cost of the element, pursuant to terms and conditions agreed to in negotiations or ordered by states in arbitrations. Thus, the competitive LEC faces the risk

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the incumbent LECs to evade a substantial portion of their unbundling obligation under section 251(c)(3). Specifically, the Eighth Circuit stated, in response to the incumbent LECs' argument that vertical switching features were services subject to resale and therefore need not be unbundled, that,

Simply because these capabilities can be labeled as 'services' does not convince us that they were not intended to be unbundled as network elements. While subsection 251(c)(4) does provide for the resale of telecommunications services, it does not establish resale as the exclusive means through which a competing carrier may gain access to such services. We agree with the FCC that such an interpretation would allow the incumbent LECs to evade a substantial portion of their unbundling obligation under subsection 251(c)(3).

*Iowa Utils. Bd. v. FCC*, 120 F.3d at 809. The Supreme Court found that the statutory definition of "network element" does not include only the physical facilities used to provide local phone service, but also includes the features, functions and capabilities that are provided by these facilities, such as vertical switching features. *Iowa Utils. Bd.*, 119 S. Ct. at 734.

<sup>126</sup> Letter from Melissa Newman, Vice President – Federal Regulatory, US West, to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98, at 1-2 (filed Aug. 18, 1999).

<sup>127</sup> See ALTS Comments at 23 (stating that the Commission should not consider the availability of resale because it would "eviscerate the 1996 Act's 'bright line' distinction between the resale and UNE methods of entry.").

<sup>128</sup> *Local Competition First Report and Order*, 11 FCC Rcd at 15667, para. 331.

<sup>129</sup> *Id.* at 15667, para. 332.

that end-user customers will not demand a sufficient number of services to allow the competitive LEC to recoup the costs it incurs using the unbundled element; a carrier that resells the incumbent LEC's services does not face the same risk.<sup>130</sup> The 1996 Act grants competitive LECs the option of using either the incumbent LEC's unbundled network elements or resold services, thereby allowing the competitors to balance the risks and opportunities associated with each.

69. In addition, even if we agreed with US West that an incumbent LEC's retail tariff provided competitive LECs with a viable alternative to the incumbent LEC's unbundled network element, competitors would have no assurance that the incumbent LEC would not change the tariff in such a manner that the competitive LEC could no longer rely on it to provide the services it seeks to offer. Most services that competitive LECs purchase for resale are contained in state tariffs, and are subject to the states' tariff approval process. Relying on these state-approved tariffs would compromise our ability to determine which network elements must be unbundled pursuant to section 251(d)(2) because we would not be able to evaluate each incumbent LEC retail tariff as a possible alternative for every network element. In addition to being administratively unworkable for us to evaluate every state tariff filed by the incumbent LECs, relying on these tariffs as alternatives to the incumbent LECs' unbundled network elements would create inconsistent unbundling rules among the states, a result that, as we explain further below, would not promote the development of competition for all consumers.

70. Moreover, we do not find the Supreme Court's decision requiring us to consider the availability of elements outside the incumbent LECs' network to be at all inconsistent with our decision to consider alternatives available through self-provisioning or from third-party suppliers. The Supreme Court required us to compare the use of unbundled network elements with "self-provision, or with purchase from *another provider*."<sup>131</sup> If we were to construe the Supreme Court's opinion in the manner suggested by US West, we would have to consider whether an incumbent LEC's duty to unbundle an element would be limited by the existence of an alternative service that the incumbent LEC provides itself, whether or not there are other competitively-supplied alternatives. In other words, under US West's argument, the existence of its retail tariffs alone would be sufficient to eliminate its obligation to unbundle certain elements. The Supreme Court's opinion does not require us to ignore whether there are other non-incumbent LEC alternatives to the incumbent LEC's unbundled network elements, proposed by US West.

71. We believe that the "impair" standard we adopt in this Order will encourage the development of facilities-based competition. Specifically, as competitors acquire more customers, and the material differences in cost, time, quality, and operational impediments diminish, competitors will gradually reduce their reliance on the incumbent LECs' facilities. Competitors will also deploy more of their own facilities as it becomes

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<sup>130</sup> *Id.* at 15668, para. 334.

<sup>131</sup> *Iowa Utils. Bd.*, 119 S. Ct. at 735 (emphasis added).

practical to do so. As the material differences decrease, the Commission will be able to apply the same standard to remove elements from the national unbundling obligations.

72. Cost. In addition to the direct cost of purchasing the element, we consider all of the costs that requesting carriers would incur using an alternative element to provide the services it seeks to offer. Although not dispositive, the costs associated with self-provisioning or purchasing alternative elements from third-party suppliers are relevant to our determination of whether the element is a practical and economical alternative to the incumbent LEC's unbundled network element.

73. We believe that an "impair" standard based on cost is more appropriate than a standard based on profitability, because profit margins for both new and existing carriers will depend on the degree of competition that exists in the market. If the cost of the alternative element is materially greater than the cost of obtaining the corresponding element from the incumbent, the requesting carrier will not be able to provide service at prices that are competitive with the incumbent's prevailing retail prices.

74. In determining whether the cost of self-provisioning or purchasing an element from a third-party source is materially higher than using the incumbent LEC's unbundled network element, we evaluate the difference between the cost to the requesting carrier of obtaining the unbundled element from the incumbent LEC at forward-looking costs and the cost of an alternative element. Because the Commission's rules require that network elements be priced based on forward-looking economic costs, we believe that forward-looking costs are the appropriate costs to consider in our analysis.

75. In order to provide service using its own facilities, a competitor will incur the costs of purchasing, installing, and provisioning the equipment it needs to provide service using its own loop or by interconnecting with the incumbent's network. The record in this proceeding addresses several types of costs associated with using an alternative element. These include the direct costs of provisioning the element, including fixed and sunk costs, as well as other costs that are likely to materially affect the requesting carrier's ability to provide the services it seeks to offer. "Fixed costs" are costs that do not vary with the level of output.<sup>132</sup> A "sunk cost," on the other hand, is a cost that, once incurred, cannot be recouped if the firm ceases production.<sup>133</sup> To the extent that a competitive LEC incurs significant fixed costs or sunk costs when it uses its own facilities or acquires facilities from a third party, these costs can disadvantage the competitor relative to the incumbent.

76. Fixed costs are frequently associated with economies of scale. Specifically, where a firm faces both a fixed cost and a constant or declining variable cost, the firm's average unit cost will fall as output increases, and the firm's cost structure is said to

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<sup>132</sup> See, e.g., Dennis W. Carlton & Jeffrey M. Perloff, *Modern Industrial Organization* 31 (1989).

<sup>133</sup> See *id.* at 32.

exhibit economies of scale. For example, the cost a competitive LEC incurs to construct its own fiber transport ring would constitute a fixed cost, because, at least in the short run, this cost would not vary as the competitive LEC's output changed.<sup>134</sup> If a competitive LEC incurs significant fixed costs when it uses a particular facility, in its early stages of development it would have a significantly higher average unit cost than the incumbent LEC, which has a significantly larger output and customer base over which to spread the fixed cost. Since the Commission's rules require unbundled transport to be priced based on forward-looking costs (a form of long-run average incremental cost), leasing the incumbent's unbundled transport facilities is likely to be significantly less costly than deploying one's own transport facilities when the competitor has a relatively small volume of traffic, and thus its output would be small relative to that of the incumbent.<sup>135</sup>

77. Certain network facilities also involve sunk costs, because the facilities cannot be easily re-deployed or sold should the competitor decide to cease offering service over those facilities.<sup>136</sup> For example, the cost of the loop serving a customer's home is largely a sunk cost because it cannot be recovered if the carrier ceases serving the customer. It is generally recognized that the need to incur sunk costs can constitute a barrier to entry.<sup>137</sup> Specifically, where an incumbent has already deployed sunk facilities to serve all customers, a competitive LEC may be unwilling to sink the costs of duplicative facilities, either because it may be unable to lure customers away from the incumbent and generate enough revenue to recover these sunk costs, or because resulting competition between itself and the incumbent LEC would drive prices so low that, even if the competitive LEC won a significant number of customers, it would still be unable to recover its sunk costs. In such situations, the incumbent has a "first mover" advantage.<sup>138</sup>

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<sup>134</sup> Similarly, a competitor that purchases its own switch or deploys feeder and distribution plant will incur significant fixed costs.

<sup>135</sup> Cf. *Applications of Ameritech Corp., Transferor, and SBC Communications, Inc., Transferee, for Consent to Transfer Control of Corporations Holding Commission Licenses and Lines Pursuant to Sections 214 and 310(d) of the Communications Act*, CC Docket No. 98-141, Description of the Transaction, Public Interest Showing and Related Demonstrations, at 49-55 (filed July 24, 1998) (applicants argue that, because of economies of scale, they must merge in order to compete in areas outside of their regions).

<sup>136</sup> See MCI WorldCom Comments, Tab 2, Decl. of John E. Kwoka, paras. 11-12; AT&T Reply Comments, Tab B, Aff of R. Glenn Hubbard/William H. Lehr/Janusz A. Ordover/Robert D. Willig at para. 51. The total costs of providing telecommunications services include sunk costs and fixed costs. Sunk costs are costs that the entrant must incur that cannot be recovered if it later decides to exit the market, such as non-recurring costs for collocation, delays associated with connecting the incumbent's loops to a competitor's switch, and fees required by municipalities to construct rights-of-way. Fixed costs are those costs that carriers incur which do not vary based on the number of customers that they serve.

<sup>137</sup> See, e.g., William J. Baumol, John C. Panzar & Robert D. Willig, *Contestable Markets and The Theory of Industry Structure* 290-92 (1982).

<sup>138</sup> See, e.g., Jean Tirole, *The Theory of Industrial Organization* 314-15 (1988); Richard J. Gilbert, *Mobility Barriers and the Value of Incumbency in I The Handbook of Industrial Organization* 491 (Richard Schmalensee and Robert D. Willig, eds.) (1989).

78. The non-recurring costs of collocating equipment in the incumbent's end offices, including the costs of connecting the incumbent LEC's unbundled loops to the competitor's switch, and the fees required to obtain rights-of-ways, also constitute sunk costs. Unlike the costs associated with purchasing portable equipment, such as multiplexers or switches, the non-recurring costs incurred to collocate equipment and connect network elements to the competitive LEC's collocated equipment in an incumbent's central office are sunk costs and cannot be recovered if, for whatever reason, the carrier exits that market.

79. Additional costs, such as the costs a competitive LEC incurs to connect its own facilities to the incumbent LEC's unbundled network elements, affect the extent to which an alternative element is available as a practical and economic matter, such that a requesting carrier can actually use the element to provide the service it seeks to offer. For example, when a competitive LEC deploys its own switch but purchases the customer's unbundled loop from the incumbent, the competitive LEC may incur significant costs to connect the customer's loop, located in the incumbent LEC's central office, to its own switch. When these cutover costs are added to the costs of collocation, a competitor's ability to provide service in an efficient manner, when using its own switch for unbundled switching, could be materially diminished. We thus look at all of the costs a competitor must incur when using alternatives to the incumbent LEC's network element.

80. We find that significant fixed and sunk costs associated with using alternatives outside the incumbent LEC's network contribute to a finding that lack of access to the incumbent's unbundled network elements impairs the requesting carrier's ability to provide the service it seeks to offer. This is particularly true for a new competitive LEC that has few customers from which it can recover these costs. Because the per-customer costs decrease as the number of subscribers served by the carrier increases, a carrier must acquire a sufficient customer base if it is to recover substantial costs associated with deploying its own facilities.<sup>139</sup> It is reasonable, therefore, that a competitive LEC, at a minimum, would want to serve a substantial number of business and/or residential customers within a particular Metropolitan Statistical Area (MSA).<sup>140</sup>

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<sup>139</sup> In addition, the per-customer costs decrease as the distance required to reach each subscriber decreases. The per-subscriber cost of service will be lower in those situations where carriers can aggregate and carry large volumes of traffic over short distances rather than small volumes of traffic over long distances. See MCI WorldCom Comments, Tab 3, Decl of Mark T. Bryant, at para. 11.

<sup>140</sup> See, e.g., Covad Comments at 2 (business plans call for it to deploy facilities in 51 MSAs by the end of 1999); USTA UNE Report at III-3 ("Within top 50 MSAs, CLECs have deployed nearly 30,000 miles of fiber"). An MSA is also a reasonable entry market because number portability is deployed on an MSA basis, and available to serve a requesting carrier's customers within these areas. *Telephone Number Portability*, First Memorandum Opinion and Order and Further Notice of Proposed Rulemaking, 11 FCC Rcd 8352, para. 3 (1997) (requiring all LECs to implement long term number portability in the 100 largest MSAs according to a phased deployment schedule). We recognize that carriers may serve areas smaller than the total MSA. If we make a determination that the incumbent need no longer offer an unbundled element because there are viable alternatives available on an MSA basis, we do not believe that such a carrier would be impaired because the alternatives would most likely be available to serve customers located in smaller areas within the MSA.



If the competitor must collocate its own switches in multiple central offices throughout the MSA in order to serve those customers, the costs associated with collocation may impair the competitor's ability to provide the services it seeks to offer, even if the cost of purchasing the individual equipment hardware is not excessive.

81. In addition, we find that the type of customers that a competitive LEC seeks to serve is relevant to our analysis of whether the cost of self-provisioning or acquiring an element from a third-party supplier impairs the ability of a requesting carrier to provide the services it seeks to offer. Section 251(d)(2)(B) requires us to consider whether lack of access to the incumbent LEC's network elements would impair the ability of the carrier to provide the *services* it seeks to offer. Consistent with the Act, we define the term "services" as it is used in section 251(d)(2)(B), to mean "telecommunications service," as it is defined in section 153(46) of the Act.<sup>141</sup> Section 251(c)(3) of the Act places an affirmative duty on the incumbent LEC to provide unbundled elements to "any requesting telecommunications carrier for the provision of a telecommunications service."<sup>142</sup> Section 251(d)(2)(B), in turn, requires that a requesting carrier should not have access to unbundled elements unless it would be impaired in its ability to provide "the services that it seeks to offer."<sup>143</sup> Different types of customers use different services (*e.g.*, large business customers order different services than residential customers). We therefore conclude that it is appropriate for us to consider the particular types of customers that the carrier seeks to serve.

82. Competitive LECs generally seek to provide service to residential and small business customers and/or to large business customers. The different revenue-generating potential of these different customer groups will often determine whether or not a competitive LEC can afford to incur the costs of self-provisioning a facility or of acquiring it from a third-party supplier, to the extent that it is available from a third-party provider. For example, a model submitted by MCI WorldCom that compares the costs of serving residential customers using unbundled elements from the incumbent LEC with the costs of serving the customers using its own facilities indicates that, at low market penetration levels, the costs of collocation would impair a competitive LEC's ability to serve residential customers using its own facilities. The model further demonstrates, however, that using the incumbent LEC's unbundled network elements, the entrant would be able provide service, even at the same low market-penetration levels.<sup>144</sup>

83. Although the model submitted by MCI WorldCom is clearly not dispositive, we note it to illustrate that a requesting carrier's ability to serve residential and small

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<sup>141</sup> 47 U.S.C. § 153(46).

<sup>142</sup> 47 U.S.C. § 251(c)(3).

<sup>143</sup> 47 U.S.C. § 251(d)(2)(B).

<sup>144</sup> Letter from Lori Wright, MCI WorldCom, to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket Nos. 96-98; 95-185 (filed July 13, 1999).

business customers may be materially diminished without access to the incumbent LEC's network. Larger business customers, on the other hand, may generate sufficient revenue to allow the requesting carrier to serve the customer using certain self-provisioned facilities or facilities acquired from third-party sources.

84. We also consider, as part of our analysis, the economies of scale and scope that the incumbents have due to their ubiquitous network. The record demonstrates that, although facilities-based competition has developed in particular markets (primarily for large business customers in high-density areas), incumbent LECs continue to enjoy significant economies of scale and density not enjoyed by competitive LECs.<sup>145</sup> Because these economies lower the incumbent's per-customer costs of providing service, vis-à-vis their competitors, we find these economies relevant to our inquiry of the extent to which costs of using alternative elements impair a requesting carrier's ability to provide the services it seeks to provide.

85. We are not persuaded by the argument of BellSouth and other incumbent LECs that we should not consider the impact of the incumbents' economies of scale because competitors are capable of matching or exceeding the incumbent LECs' economies by building their own facilities.<sup>146</sup> The Commission has concluded previously that an incumbent LEC's existing infrastructure generally enables it to serve new customers at a much lower cost than a requesting carrier that must install its own switches, trunking, and loops to serve its customers, and that Congress has addressed this problem by mandating that incumbent LECs share their economies of scale and density with competitors.<sup>147</sup>

86. We continue to believe that one important purpose of the unbundling provisions of the Act is to permit competitive LECs to compete with the same economies as the incumbents, especially in the early stages of local competition, when their networks are limited in their reach, and their customer bases are necessarily small.<sup>148</sup> The incumbent LECs still enjoy cost advantages and superiority of economies of scale, scope, and ubiquity as a result of their historic, government-sanctioned monopolies. These economies are now critical competitive attributes and would belong unquestionably to the

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<sup>145</sup> For example, MCI WorldCom describes the economies of scale to which several unbundled elements are subject. MCI WorldCom Comments, Tab 3, Decl. of Mark T. Bryant, at paras. 2-24. *See also* NTIA Comments at 30-31 ("To the extent that the inability to obtain an unbundled element from an ILEC increases a CLEC's costs (for example, by forcing it to purchase a more expensive substitute or by denying the CLEC the economies of scale, scope, or density associated with the ILEC UNE), the resulting diminution in profits will reduce the internal funds available to extend and upgrade the CLEC's network and service offerings); Qwest Comments at 20 (stating that the incumbent LECs, themselves, admit that the ubiquity of their networks creates unique economies of scope and scale.) (citation omitted).

<sup>146</sup> BellSouth Reply Comments at 3-5.

<sup>147</sup> *Local Competition First Report and Order*, 11 FCC Rcd at 15508-09, para. 10-11.

<sup>148</sup> *Id.* at 15528, 15531, 15624, paras. 56, 61, 242.

incumbent LECs if they had “earned” them by superior competitive skills. These advantages of economies, however, were obtained by the incumbents by virtue of their status as government-sanctioned and protected monopolies. We believe that these government-sanctioned advantages remain barriers to the requesting carriers’ ability to provide a range of services to a wide array of customers, and that their existence justifies placing a duty on the incumbent carriers to share their network facilities. Indeed, Congress, in section 259 of the Act, recognized expressly the benefits that the incumbent LECs have as a result of their economies of scale and scope. Section 259 requires the Commission to ensure that incumbent LECs make their infrastructure available to qualifying carriers on terms and conditions that permit the qualifying carriers to “fully benefit from the economies of scale and scope of such [incumbent] local exchange carrier.”<sup>149</sup> Although section 259 of the Act is different from section 251 in that qualifying carriers obtaining infrastructure from the incumbent LEC pursuant to a section 259 agreement may not use such infrastructure to compete with the incumbent LEC in its service territory, both sections make the incumbent LECs’ broad economies of scale and scope available to other carriers by requiring them to grant other carriers access to their networks.<sup>150</sup>

87. We do not agree with Ameritech that competitive LECs are not impaired in their ability to provide service because they have cost efficiencies which the incumbent LECs do not have.<sup>151</sup> Although we agree that competitors may have certain cost advantages, we find that these advantages are likely to be outweighed by other costs that competitive LECs, but not incumbent LECs, incur to provide service. For example, many competitive LECs are likely to incur higher costs than the incumbent LECs to attract customers, because unlike the incumbent, many competitive LECs must establish a brand name and develop a reputation for service quality before they can overcome the incumbents’ long-standing relationships with their customers. Similarly, competitive LECs must incur the initial costs of setting up their operations and developing their back-office systems. AT&T also points out that new entrants face a high level of risk when they enter the local market, because they enter without the incumbent LEC’s knowledge

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<sup>149</sup> 47 U.S.C. § 259(b)(4).

<sup>150</sup> *Implementation of Infrastructure Sharing Provisions in the Telecommunications Act of 1996*, CC Docket No. 96-237, Report and Order, 12 FCC Rcd 5470, 5495, 5497, paras. 50, 54 (1997) (*Infrastructure Sharing Order*) (stating that incumbent LECs must make the same network facilities and functionalities, including unbundled network elements and resale, available to qualifying carriers under section 259 as they would make available under section 251). The Commission also found in the *Infrastructure Sharing Order* that cost, availability, timeliness, functionality and other operational aspects associated with use of the incumbent LEC’s infrastructure determine whether or not the qualifying carrier seeking access to the incumbent LEC’s network under section 259 “fully benefits from the economies of scale and scope” of the incumbent LEC. *Id.* at 5528, para. 117. These are some of the same factors that we have identified here as being relevant to whether a requesting carrier can achieve the same benefit from using an alternative network element as it would from using the incumbent LEC’s network element.

<sup>151</sup> See, e.g., Ameritech Comments at 61; Ameritech Reply Comments, Att. A, Aff. of Debra J. Aron/William L. Fitzsimmons/Robert G. Harris, at 16-19.

of local operating costs (e.g., location and quality of outside plant facilities) and consumer demand (e.g., peak traffic volumes over certain facilities and demand growth).<sup>152</sup>

88. We recognize that a new entrant in many industries will face disadvantages arising from economies of scale. We further recognize that, even after competition in local telecommunications markets is well-established, and the Commission can eliminate certain unbundling requirements, smaller competitors will be at a disadvantage to the extent that incumbent LECs continue to enjoy significant economies of scale in the provision of local telephone service. Nonetheless, we believe that the existence of economies of scale, as well as sunk costs, are relevant factors to consider in our assessment of whether failure to provide access to a particular unbundled network element will impair a requesting carriers' ability to provide the services it seeks to offer. Although we find economies of scale to be a relevant factor in our analysis, we note that we are not basing our determination of whether competitive LECs are "impaired" within the meaning of section 251(d)(2) solely on the existence of scale economies, nor do we assume that the incumbent LEC's scale economies are insurmountable in all circumstances.

89. Timeliness. We also conclude that the time associated with using alternative elements is relevant to a determination of whether a requesting carrier would be impaired in its ability to provide the services it seeks to offer. A thorough evaluation of the delays associated with using alternative elements requires an analysis of both the start-up time required for a competitor to enter a market and serve a substantial number of customers in an MSA, as well as the time it would take a competitor that has already entered the market to expand its operations to serve more customers. We conclude that delays caused by the unavailability of unbundled network elements that exceed six months to one year may, taken together with other factors, materially diminish the ability of competitive LECs to provide the services that they seek to offer.

90. We recognize that the deployment of alternative elements, whether through self-provisioning facilities or by acquiring them from third-party suppliers, will require a reasonable amount of time. The delays associated with using alternative network elements will exist whether the requesting carrier is either just beginning to provision service or whether it is deploying additional facilities to expand its operations to serve more customers. Commenters differ in their opinions as to what constitutes a reasonable time to self-provision facilities.<sup>153</sup> There is considerable evidence in the record, however, that indicates that it takes between six months and one year to engineer, furnish, and install a switch, including the time needed to obtain collocation space in the incumbent

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<sup>152</sup> AT&T Reply Comments at Tab B, Aff. of R. Glenn Hubbard/William H. Lehr/Janusz A. Ordovery/Robert D. Willig, at para. 65.

<sup>153</sup> See *infra* section V(D) (stating that some incumbent LECs claim that a switch can be fully provisioned in 40 days (BellSouth Reply Comments at 29), while competitive LECs assert that it can take between six months and two years (CompTel Comments at 39, n.89)).

LEC's central offices where the switch will be connected to unbundled loops.<sup>154</sup> Also, NTIA argues that we should consider as nontrivial any delay in service provisioning in excess of six months as compared to the time it would take for a competitive LEC to begin provisioning a service using an incumbent LEC's network element.<sup>155</sup>

91. Based on the record before us, we conclude that it is reasonable to expect that a competitive LEC will need between six months and one year to provide service using a self-provisioned facility or one acquired from an alternative source. The local telecommunications market grows at an extremely rapid pace for many products and services. Indeed, we have reported that the demand for certain services has increased significantly from year to year since the passage of the 1996 Act<sup>156</sup> and that we expect this trend to continue, particularly for advanced services.<sup>157</sup> We believe that any delay that a competitive LEC experiences in serving this fast-paced, high-growth market can impair its ability to provide its desired services. Although we cannot quantify precisely how much of a delay associated with an alternative network element will materially diminish the ability of a competitor to provide its desired services, we find that delays that exceed six months to one year may, taken together with other factors, materially diminish the ability of a competitive LEC to provide the services it seeks to offer because it prevents the competitive LEC from responding quickly to the demand for its services in a rapidly changing market. Moreover, we agree with NTIA that incumbent LECs can take advantage of delays caused by the unavailability of unbundled network elements by using their "unique access to most customers to gain a foothold in new markets, and, in markets where services may be offered pursuant to long term-contracts (e.g., DSL and other advanced data services), to 'lock-up' customers in advance of competitive entry."<sup>158</sup>

92. We disagree with Ameritech that a competitor is not impaired in its ability to provide a service if it can deploy alternative facilities within two years of its decision to

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<sup>154</sup> See *infra* Section V(D). AT&T also maintains that gaining access to commercial buildings for the deployment of loop facilities often involve delays of up to six months while the competitor attempts to negotiate access with the building owner. AT&T Reply Comments at 82.

<sup>155</sup> NTIA Comments at 32.

<sup>156</sup> For example, residential customers with existing telephone service purchased over two million additional telephone lines for their homes between 1996 and 1997. *Trends in Telephone Service*, Federal Communications Commission, Sept. 1999, at Table 20.4 (*Trends in Telephone Service*). The number of cellular telephone subscribers increased by nearly 14 million subscribers between December 1997 and December 1998. *Trends in Telephone Service* at Table 2.1.

<sup>157</sup> *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996*, Report, 14 FCC Rcd 2398, 2419-20, 2428, 2445-46, paras. 42, 56, 90 (1999) (*706 Report*) (Report finds that there is currently rapid demand for broadband services by all consumers, particularly residential consumers, and that such demand is expected to grow.).

<sup>158</sup> NTIA Comments at 31.

do so.<sup>159</sup> Congress made unbundled elements available to competitive LECs to avoid the time it would take competitive LECs to duplicate the incumbents' networks, thereby promoting the rapid development of competition for all consumers. We believe that requiring consumers to wait up to two years to have access to a choice of competitive service offerings, while competitors attempt to provide service without access to unbundled elements, is unreasonable and inconsistent with the objectives of the Act.

93. We also disagree with US West's claim that we should not consider the amount of time required for a competitive LEC to self-provision an element or acquire it from a third-party supplier because there are always inherent provisioning delays associated with using alternative elements.<sup>160</sup> We believe the amount of time it takes a competitive LEC to self-provision an element or acquire an alternative from a third-party supplier is highly relevant to its ability to provide the services it seeks to offer. In particular, we agree with commenters that in order to compete effectively, competitive LECs must be able to initiate service promptly upon the request of their customers.<sup>161</sup> We also agree with NTIA that delays in the introduction of competitive services caused by the unavailability of unbundled elements from the incumbent LEC would give the incumbent valuable time to entrench itself with existing customers.<sup>162</sup>

94. Although we agree with US West that self-provisioning or acquiring alternative network elements from third-party suppliers involves normal delays incurred when starting or expanding a business, we find that significant delays will materially diminish a requesting carrier's ability to provide the services it seeks to offer. In addition, we have accounted for the inherent provisioning period to which US West refers by determining that it will take competitors approximately six months to one year to provide service, and that delays that exceed that time period would materially diminish a requesting carrier's ability to provide a competitive service.

95. We disagree with US West that it would be too administratively complex to consider the differences between the time it would take a competitor to obtain an element from the incumbent LEC and the time it would take to self-provision an element.<sup>163</sup> We do not find it to be too administratively complex to consider whether a delay associated

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<sup>159</sup> Ameritech Comments at 35.

<sup>160</sup> US West Comments at 22-23.

<sup>161</sup> See, e.g., AT&T Reply Comments at 45 ("The delays AT&T has discussed – such as those involved in obtaining building access and right-of-way agreements to lay fiber – are substantial delays and ones that would be imposed on a recurring, ongoing basis as to CLECs that have already 'entered' a market and are seeking to win new customers, to build and connect facilities for those customers, and to compete with the incumbent LEC in offering timely commitments for due dates when those customers are choosing a carrier."); MCI WorldCom Comments at 18.

<sup>162</sup> NTIA Comments at 31.

<sup>163</sup> US West Comments at 22-23.

with using an alternative network element exceeds the six month to one year timeframe we identified above. As we stated above, the “impair” standard does not mandate precise quantification; nor does it involve an analysis of the delay suffered by every carrier. It requires instead a consideration of whether, as a general matter, there is an identifiable difference in the amount of time required to provide service using an alternative element and the amount of time required to provide service using the incumbent LEC’s element, such that the delay would materially diminish the competitor’s ability to provide the services that it seeks to offer.

96. Quality. We also conclude that the quality of alternative network elements available to the competitive LEC is relevant to a determination of whether a requesting carrier’s ability to provide service is impaired. We agree with the California PUC and other commenters that a material degradation in service quality associated with using an alternative element will materially diminish a competitor’s ability to effectively provide service.<sup>164</sup> Examples of diminished quality presented in the record include greater dialtone delay, higher blocking rates, elevated noise on a telephone line and increased failure rates.<sup>165</sup> These types of quality problems, all of which are recognizable by the end-user customer may, taken together with other factors, materially diminish the ability of the competitor to provide the services that it seeks to offer. In addition, we believe that the type of service a competitor seeks to provide is also relevant to the quality factor. For example, end users may be much less tolerant of problems that affect data services, than they would be for voice service.<sup>166</sup>

97. Ubiquity. We conclude that we should also consider the extent to which the competitive LEC can serve customers ubiquitously using its own facilities or those acquired from third-party suppliers. We agree with competitive LECs that they may be impaired if lack of access to an unbundled element materially restricts the number or geographic scope of the customers they can serve.<sup>167</sup> For example, incumbent LECs own 98 percent of all access lines in Texas and have deployed 1538 switches throughout the state. According to the Texas PUC, if a competitive carrier seeks to provide local

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<sup>164</sup> California PUC Reply Comments at 3. *See also* Texas PUC Comments at 7-8; Choice One Joint Comments at 6-7; Columbia Comments at 9; Corecomm Comments at 17-20; KMC Comments at 5-6; Pilgrim Comments at 14-15.

<sup>165</sup> TRA Comments at 23. *See also* ALTS Comments at 21-22 (“If use of an alternative results in a competitive service offering with greater levels of signal loss, circuit outage or mean repair time compared to that of the incumbent, it cannot be found that the alternative presents the requesting carrier with an element that consumers will accept as part of a competitive service offering.”).

<sup>166</sup> *See* TRA Comments at 23 (stating that a competitive LEC is impaired if the substitute element would prevent it from offering the same functionality as the incumbent’s service, *e.g.*, stutter dialtone or message-waiting indicator).

<sup>167</sup> *See, e.g.*, Cable & Wireless Comments at 11; Prism Comments at 15; TRA Comments at 23.

telephone service throughout the state, it would be impractical, if not impossible, for the carrier to replicate the incumbents' networks.<sup>168</sup>

98. Although we acknowledge that not all competitive LECs will want to provide ubiquitous service across broad geographic areas, those that do will likely be disadvantaged vis-à-vis the incumbent, especially in the early stages of deployment, because the incumbent LECs still enjoy advantages of a ubiquitous network that provide them with economies of scale and the ability to reach all consumers in their service territories. It is reasonable to expect that, in many cases, competitors would want to provide ubiquitous service in order to achieve similar economies of scale that will allow them to spread the costs of construction, equipment, and marketing across as many customers as possible. It is also reasonable to expect that in some cases, the ability to serve ubiquitously will be necessary to meet consumer demand for competitive alternatives in broad geographic areas. In such cases, lack of access to the incumbent's unbundled network elements could significantly thwart the competitor's ability to respond to consumer demand.<sup>169</sup> Denying access to the incumbent's unbundled network elements, when use of alternative sources would materially diminish the competitors' ability to serve their intended geographic area, would be inconsistent with the goal of the 1996 Act to bring competition to the greatest number of customers. Indeed, the inability to provide service ubiquitously may be especially important for competitive LECs seeking to serve residential and small business customers located throughout a state.

99. Impact on Network Operation. We find that we should also consider how self-provisioning a network element or obtaining it from a third-party supplier may affect the technical manner in which the competitor can operate its network. We agree with the Washington Utilities Commission that overall network performance is an important consideration in our "impair" analysis.<sup>170</sup> In order to compete with the incumbent, competitive LECs must be able to connect alternative elements either to their own networks or to other incumbent LEC elements that they use to provide service. Thus, material operational or technical differences in functionality that arise from interconnecting alternative elements may also impair a requesting carrier's ability to provide its desired services.<sup>171</sup>

100. As we stated above, the incumbent LECs' relative advantages regarding costs, ubiquity, timeliness, and quality comprise only a part of a determination of whether or not a competitive LEC's ability to provide a competitive service is impaired. Indeed, as stated above, competitive LECs may have reasons for not entering a particular market

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<sup>168</sup> Texas PUC Comments at 14.

<sup>169</sup> See MCI WorldCom Comments at 23-24.

<sup>170</sup> Washington UTC Comments at 13.

<sup>171</sup> See, e.g., ALTS Comments at 21; Cable and Wireless Comments at 14-16; MCI WorldCom Comments at 25-26; Qwest Comments at 22-25.